DISTRACTION

By Cell Phones and Texting

U.S. Department of Transportation
National Highway Traffic Safety Administration

NHTSA
www.nhtsa.gov

This report was written by Amy Schick, with assistance from Debbie Ascone, Dr. Julie Kang, and Dr. Maria Vegega, all from the National Highway Traffic Safety Administration.

Distracted driving is a problem on America's roadways. You see it every day: Drivers swerving in their lanes, stopping at green lights, running red ones, or narrowly missing a pedestrian because they have their eyes and minds on their phones instead of the road.

— Former U.S. Transportation Secretary Ray LaHood

The National Highway Traffic Safety Administration is committed to reducing fatalities and injuries due to crashes on the Nation's roadways. NHTSA works daily to help prevent all types of crashes and reduce their attendant costs, both human and financial. NHTSA approaches this issue as a critical national safety problem and addresses it by applying "the four E's"—education, engineering, enforcement and emergency medical services.

The following pages will:

- Define what we mean by distracted driving;
- Provide facts about distraction crashes;
- Report what the public thinks about distracted driving; and
- Explain the Department of Transportation's (DOT) response to this safety problem.

Defining Distracted Driving

Distraction is a specific type of inattention that occurs when drivers divert their attention away from the driving task to focus on another activity. There are many types of distraction, such as talking to passengers, eating, working a navigation system, or talking or texting on a cell phone. These distracting tasks affect drivers in different ways and can be grouped into three categories:

1. **Visually distracting:** Tasks that require the driver to look away from the roadway to visually obtain information.
2. **Manually distracting:** Tasks that require the driver to take a hand off the steering wheel and manipulate a device or object.
3. **Cognitively distracting:** Tasks that require the driver to think about something other than driving.

All of these types of distractions can increase your crash risk. In addition, how often and how long a driver is distracted also has an effect on their crash risk. For example, drivers who engage in a less distracting task but do so frequently or for long periods of time may increase their crash risks to levels comparable to a much more difficult task that is performed only briefly or less often. This report focuses on driver distraction from talking or texting on a cell phone.

There are many types of distraction, such as talking to passengers, eating, working a navigation system, or talking or texting on a cell phone.

Distracted Driving Facts

One of the most commonly recognized distractions is texting or talking on a cell phone. According to the cellular telecommunications industry trade group, CTIA—the Wireless Association, there are more than 320 million cell phone subscriptions in the United States today.[1] Although people have used cell phones while driving for some time, the dangers associated with this behavior have only recently received heightened attention.

The manner in which we use our phones continues to evolve—36 percent of U.S. households are wireless only, and the average number of monthly text messages sent or received in the United States is more than 184 billion, up from 29 billion average monthly texts sent or received in 2007.[2]

Distracted driving affects all road users (drivers, passengers, pedestrians, motorcyclists, and bicyclists) and is a practice that can and must be reversed. People should not have to lose their lives, the lives of loved ones, or suffer debilitating injuries because they or someone else chose to drive distracted.

NHTSA data show that from 2007 through 2010, 17 percent of all police-reported crashes were estimated to have been distraction-affected. However, in 2012 this percentage of total police-reported crashes that were distraction-affected fell to 16 percent. The percentage of injury crashes involving distraction has also waned in recent years.[3]

People should not have to lose their lives, the lives of loved ones, or suffer debilitating injuries because they or someone else chose to drive distracted.

According to the police crash reports:

- In 2012, 3,328 people were killed in crashes involving a distracted driver, and an estimated additional 421,000 people were injured in motor vehicle crashes involving a distracted driver.
- Ten percent of fatal crashes in 2012 were reported as distraction-affected crashes.
- Ten percent of all drivers 15 to 19 years old involved in fatal crashes were reported as distracted at the time of the crashes.

The 2012 National Occupant Protection Use Survey (NOPUS) found that 5 percent of drivers hold their cell phones to their ears while driving.[4] This rate translates into 660,000 vehicles driven by people using hand-held cell phones at any given typical daylight moment in 2012. Note that NOPUS only records cases where a driver is directly observed committing this act at a given moment; however, drivers may make multiple calls during a single trip.

The Costs of Distracted Driving

NHTSA uses information available from police crash reports to quantify which motor vehicle crashes are distraction-affected, meaning that at least one driver involved in the crash was identified in NHTSA's data collection systems as "distracted." Based on all police-reported crashes that occurred in 2010, the economic cost of distraction-affected crashes was approximately $46 billion (in 2010 dollars).

Distraction Program Goals and Approach

In April 2010, NHTSA released its Driver Distraction Plan,[5] which communicates the agency's priorities to meet driver distraction safety challenges, namely the long-term goal of reducing crashes attributable to distraction. NHTSA's priorities regarding distraction are to:

- Improve understanding of the problem;
- Reduce workload demands on drivers when they use in-vehicle technologies;
- Keep distracted drivers safe through use of vehicle safety systems; and
- Help the public recognize the risks and consequences of distracted driving.

Need for Public Support

States and communities play significant roles in changing attitudes and behavior, especially in the area of traffic safety. Communities have shaped behavioral norms in many other traffic safety areas such as child passenger safety and seat belt use. Prerequisites to such behavioral change include awareness and an understanding of effective countermeasures. This understanding helps development and application of local laws and policies,

secures assistance and support of local law enforcement, and furthers community awareness through effective safety messages.

A combination of components that address legislation and policy, enforcement, communication, education, and evaluation is needed to achieve significant reductions in distracted-driving crash-related injuries and fatalities.

Attitudes, Behaviors, and Public Perception

In 2011, NHTSA published a report, National Phone Survey on Distracted Driving Attitudes and Behaviors[6] that surveyed both cell phones and landlines. A nationally representative sample of 6,002 drivers 18 and older participated.

- That survey found that 16 percent of respondents said they rarely sent text messages or e-mails while driving; however, nearly half (44%) of those 21 to 24 years old reported doing so. More than half the respondents believe that using a cell phone and or sending a text message or e-mail makes no difference on their driving performance; yet as passengers, 90 percent said they would feel very unsafe if they were in a car with a driver who was talking on a hand-held cell phone or texting/e-mailing while driving.
- Males and younger respondents tend to underestimate the risks cell phone use has on their driving abilities. Also, those in the upper income tier ($100K+) reported higher incidence of cell phone use while driving, and they, too, tended to underestimate the risk. Even more disturbing is that one-third of drivers 18 to 24 years old feel they can take their eyes off the road for 3 to 10 seconds or more before driving becomes significantly more dangerous.
- These findings are consistent with a host of other research indicating that despite the well-publicized dangers of distracted driving, many Americans choose to use cell phones while driving. Perhaps they feel the risk and consequences of doing so don't apply to them; survey data suggest drivers who use cell phones or text while driving believe that other users pose a bigger danger than they do.

Need for Strong Legislation

According to the Governors Highway Safety Association, as of October 22, 2014, a total of 44 States, the District of Columbia, Puerto Rico, U.S. Virgin Islands, and Guam ban text messaging for drivers, with some limited exceptions, and the laws in 39 of these 44 jurisdictions are primary enforcement laws. Fourteen States, DC, Puerto Rico, Guam, and the U.S. Virgin Islands prohibit all drivers from using hand-held cell phones while driving. No State completely bans all types of cell phone use (hand-held and hands-free) for all drivers, but many prohibit cell phone use by some drivers. For instance, some States ban all cell phone use by novice drivers.[7]

There is considerable variability in State distracted driving laws. For example, some States allow drivers to view or read text messages while driving; some States allow for occupational exemptions; and the majority of States allow drivers to text while the vehicles are stopped in the trafficway or at intersections. Laws by themselves are only part of the answer. It has been repeatedly shown that laws need to be coordinated with high-visibility enforcement to affect behavior.

Critical legislative and policy components include:

- Enactment and enforcement of strong laws and policies that provide clear guidance to the public concerning distracted driving;
- Distracted driving legislation that permits primary enforcement and applies to all drivers; and
- Government and private-employer regulations and policies requiring employees to drive distraction-free when on official business or in official vehicles, and encouraging compliance with the organization's policy when off-duty.

Promising Countermeasures

Efforts to support the U.S. DOT's distracted-driving initiative include: statutory actions; releasing sample legislation, and encouraging States to adopt strong anti-distraction laws with meaningful penalties; conducting research projects; conducting high-visibility enforcement programs combined with public service announcements to get distracted drivers to put down their cell phones and focus on the road; joining with high-profile public awareness campaigns to get the word out on distracted driving; and participating in the global effort to address the growing and deadly epidemic of distracted driving.

High-visibility law enforcement programs increase drivers' perceptions of the likelihood of being ticketed for violating a particular traffic safety law. High-visibility enforcement combines active law enforcement with paid and earned media advertising that emphasizes that heightened enforcement. This approach has been proven effective in increasing seat belt use and reducing alcohol-impaired driving.

High-visibility enforcement combines active law enforcement with paid and earned media advertising that emphasizes that heightened enforcement.

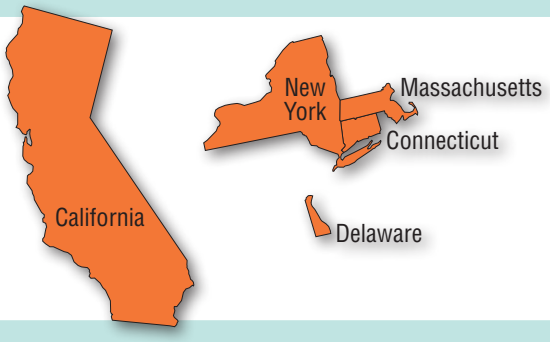
To test this approach with distracted driving, in April 2009 NHTSA launched two high-visibility enforcement pilot programs in Hartford, Connecticut, and Syracuse, New York. These programs assessed whether increased law enforcement efforts combined with paid and earned media and news announcements could get distracted drivers to put down their cell phones and focus on the road. The pilot programs, *Phone in One Hand. Ticket in the Other*, were the first in the country to focus on the effects of increased enforcement and paid advertising on reducing distracted driving. These are similar to previous efforts to curb drunk driving and increase seat belt use.

- The use rates for drivers using hand-held cell phones while driving dropped 57 percent in Hartford (from 6.8% to 2.9%) and 32 percent in Syracuse (from 3.7% to 2.5%). The use rate for drivers who were texting while driving declined 72 percent in Hartford (from 3.9% to 1.1%) and 32 percent in Syracuse (from 2.8% to 1.9%).[8]

The results indicate that drivers can and will change their behavior on cell phone use when faced with good laws, tough enforcement, and strong education campaigns supporting that enforcement. However, continued research is needed to further refine and promote the most effective enforcement strategies.

In summer 2012, California and Delaware received Federal support for pilot programs that are examining whether increased police enforcement coupled with paid media and news media coverage can significantly reduce distracted driving over a larger, more populated area. The multi-market efforts mirror the approach used in smaller-scale demonstration projects. The California program is taking place in nine counties and among 3.9 million residents in the Sacramento Valley, while the Delaware program is being conducted statewide.

In addition, in October 2012 NHTSA announced grants to Connecticut and Massachusetts to help plan and conduct high-visibility, anti-texting enforcement programs. Each State will develop countermeasure strategies and train police officers on methods for spotting drivers who are texting (versus drivers using hand-held cell phones, which was the focus of the previous demonstrations), and to develop media techniques that alert the public to the perils of texting while driving.



While the majority of States have distracted-driving laws in place, prior demonstration programs found that it is harder to detect drivers texting behind the wheel than to identify drivers talking on handheld cell phones. The vast majority of tickets issued under the Hartford and Syracuse programs were for hand-held phone use—only about 5 percent of the citations issued in both communities were for texting violations. While it is relatively easy for law enforcement to recognize illegal hand-held cell phone use by observing the position of the phone at the driver's ear, the dangerous practice of texting while driving is often not as obvious. These two new demonstration programs will help identify real-world protocols and practices to better detect if a person is texting while driving. The results of these demonstrations will be documented for the benefit of other States facing similar challenges.

Vehicle Technologies

NHTSA's Distraction Program Plan also includes vehicle approaches for reducing distracted driving. One such initiative focuses on the development of guidelines to minimize the potential for in-vehicle and portable technologies to be the source of driver distractions.

NHTSA issued voluntary guidelines for in-vehicle technologies on April 26, 2013.[9] The goal of these guidelines is to encourage automakers to design in-vehicle devices associated with non-driving (secondary) tasks such as communications, entertainment, informational, and navigation in a way that minimizes driver distraction. The guidelines provide test methodologies and metrics for manufacturers to use in determining whether performing a secondary task with their device interferes too much with a driver's ability to safely control their vehicle. NHTSA is planning to develop a second set of guidelines to address portable and aftermarket devices, including electronic devices such as smart phones, electronic tablets and pads, and other mobile communications devices. A third set of guidelines is planned to address voice-based user interfaces for both integrated and portable and aftermarket devices.

Vehicle-to-vehicle (V2V) safety technologies could help drivers avoid or reduce the severity of specific types of crashes by sending a warning to the driver during specific hazardous traffic situations.

Another initiative focuses on evaluating crash avoidance technologies that could keep distracted drivers and passengers safe by providing warnings that could alert them of the danger in time to take corrective action and avoid a crash. The way that crash avoidance systems warn drivers (e.g., auditory alarms, vibrating seats) is a critical component to successfully getting drivers to respond sooner to hazardous situations.

A third area of research with potential to significantly reduce crashes is the Connected Vehicle program, which is testing technology that would allow vehicles to communicate with one another. Vehicle-to-vehicle (V2V) safety technologies could help drivers avoid or reduce the severity of specific types of crashes by sending a warning to the driver during specific hazardous traffic situations, such as when approaching blind intersections, making lane changes, or when a stopped or slowly moving vehicle is ahead in the travel lane. A key aspect of the Connected Vehicle program is ensuring that the new technologies can perform their safety function without creating a distraction for the driver.

ONE TEXT OR CALL COULD WRECK IT ALL

DISTRACTION.GOV

Awareness Campaigns

Since 2009, the U.S. Department of Transportation has launched a variety of creative campaigns to raise awareness about the dangers of distracted driving. With the help of numerous safety partners, we have reached out to millions of Americans with the important message that *One Text or Call Could Wreck It All*.

- In December 2009, U.S. DOT launched www.distraction.gov—the first ever Federal Web site designed to raise awareness and maintain sustained attention on the issue. Distraction.gov serves as a vital information portal for anything related to driver distraction. The Web site provides tools for advocates and victims and serves as a one-stop shop for media and policymakers to get facts on distracted driving.
- In November 2010, Secretary Ray LaHood launched "Faces of Distraction," an online video series that explores the personal toll paid by victims and the tragic consequences of texting and cell phone use while driving.
- U.S. DOT has joined with organizations including the Ad Council, Walt Disney Corporation, Consumer Reports, ESPN, the Better Business Bureau, State Farm, and Regal Cinemas, among others, on national and local advertising to educate the public about the dangers caused by distracted driving.

The Unknowns

Drivers have long engaged in a variety of distracting behaviors including adjusting vehicle controls, talking to passengers, and watching roadside activities. However, with the proliferation of in-vehicle and portable electronic devices in recent years, the potential for distraction has clearly increased, resulting in heightened concern in the safety community and the general public about distraction by devices such as cell phones, texting devices, and navigation systems.

The documentation of distraction is complex. For example, driver distraction is not consistently recorded as a factor in crashes across the United States, as there are differences in both the data collected on police crash reports and the quality of police reporting. There is a gap between self-reported behavior versus behavior reported to authorities (e.g., law enforcement). Pre-crash distractions often leave no evidence for law enforcement officers or crash investigators to observe, and drivers in crashes are reluctant to admit to being distracted prior to the crashes.

NHTSA is improving data collection to better understand distraction behaviors. Police crash reports are being improved through revised, uniform reporting standards. National estimates of crash

involvement will be enhanced through data modernization including improvements to the information technology (IT) infrastructure and revisions of the National Automobile Sampling System (NASS) sample sites and sample size. NHTSA research methods used to collect information on driver distraction include intensive on-scene crash investigations, as reported in the National Motor Vehicle Crash Causation Study, simulator studies, and naturalistic driving studies. Each of these approaches produce useful information and collectively provide additional insights into the problem of driver distraction. When completed, the Transportation Research Board's naturalistic driving study, Strategic Highway Research Program-2 (SHRP-2), offers the potential to better understand the relationship between distracted driving and crash or near-crash incidents.[10]

Research on Crash Causality

There has been considerable research on cell phone use and driving; however findings from these studies vary significantly.

There are four primary research types: experimental, observational, naturalistic, and crash-based studies. Each study type provides a slightly different viewpoint on driver distraction, and no one approach provides a holistic perspective (see chart on the following page).

NHTSA has conducted controlled experiments indicating how driver performance can degrade during multitasking. Performance degradations were seen in behaviors such as reduced eye scanning, slower reaction time, increased weaving of the vehicle within the lane, and lower detection of critical objects in peripheral vision.[11] However, due to the nature of controlled experiments, the crash consequences of such reduced driving performance are difficult to describe. For example, people may operate devices differently when they know they are being studied. One way to overcome the limitations of controlled experiments is through naturalistic data collection.

In 2006, NHTSA published results from a naturalistic study conducted by Virginia Tech Transportation Institute (VTTI), in which 100 cars were instrumented.[12] Analyses of the recorded video data allowed researchers to determine whether the drivers were distracted in the moments leading up to crashes or near-crashes. By comparing distractions during normal driving to distractions during crashes and near-crashes, estimates were made of the relative risk of driving distracted. Due to the success of this method, U.S. DOT, under the Transportation Research Board's Strategic Highway Research Program 2 (SHRP2), began a much larger naturalistic driving study with a wider sample of drivers, which is expected to be more representative of the general driving public. When completed, it will provide more comprehensive data on the crash causality of distracting activities.

Different types of studies and their strengths and limitations[13]

	Methodology	Strengths	Limitations
Experimental	Takes place in controlled settings, e.g., simulators, test tracks.	The driver's behaviors can be closely monitored with careful measurements of the driver, vehicle, and roadside conditions. The experimental design allows for careful control to reduce the potential for unintended effects by confounding variables. Thus, this method is more suitable for determining causal factors to not only indicate what happened but also explain why it happened.	These tightly controlled settings may not imitate true driving conditions. This study type can be expensive, so relatively small numbers of participants are generally involved.
Observational (fixed-observational)	Stationary observer records information about drivers as they pass a selected location.	These types of studies provide direct information about the types and incidence of secondary tasks that drivers attempt while driving in a naturalistic setting.	The study is limited by factors such as the time available to collect the records and potentially with conditions such as visibility. The representativeness of observation sites is limited; therefore, the results may not generalize to a greater population. Observational studies provide a snapshot assessment.
Observational (naturalistic)	Volunteer participants allow their driving behaviors to be recorded during a period of normal driving (vehicles equipped with sensors and cameras).	Observational studies are typically conducted on public roadways and there is more validity than experimental studies.	Drivers may be aware their vehicles are being monitored, which may in turn affect driving behavior. Naturalistic studies are costly and are less controlled—confounding factors may provide a false explanation of the results. Datasets are usually very large and can be challenging to analyze and interpret. A self-selection bias for the individuals willing to volunteer for these types of studies may also exist. There may also be very few crashes and near-crash events to analyze.
Crash-Based	Real-life crashes are examined to determine whether a distracting activity was involved in the crash.	Provides the most direct information about the safety consequences of carrying out secondary tasks while driving.	It is difficult to determine whether a driver distraction was a contributing factor in police crash reports as these reports do not typically include occurrence of a distracting activity and drivers may have a vested interest in not reporting the truth about their own distraction. It's very likely that the incidence of distraction is underreported in crash studies.

Naturalistic studies have their limitations as well. While controlled experiments do not provide information about the frequency and circumstances in which drivers willingly engage in distracting activities, naturalistic studies do not have the controls or metrics to study specific conditions. For example, drivers may use devices at their own discretion, which may not provide enough information to make comparisons or determine under what conditions devices are generally used. Hence, the dilemma facing research on distraction is how to control confounding factors. As controls are added, relevance to actual driving is reduced. As such, there is no singular research method that will offer a complete insight into the distracted driving problem. Multiple methods are needed to fully understand the nature of distraction and its consequences. Given that many research findings are not yet conclusive, policymakers are faced with the dilemma that they must make decisions about electronic device use and driving based on the best available evidence.

Moving Forward

NHTSA encourages States to take a data-driven approach in making decisions on whether to push for laws mandating certain driver behaviors; however, it will be several years before we have conclusive evidence of the effect of cell phone laws. While we wait for the research, we believe it is prudent to address the problem with methods that have proven effective time and again with other high-risk driver behaviors. Strong laws and proactive law enforcement have been very effective in reducing drunk driving and increasing seat belt use. Our experience in Syracuse and in Hartford suggests that strong laws and proactive law enforcement can work for cell phone use as well.

Distracted driving is a complex issue. In the United States constant connectivity is becoming the social norm and technologies continue to evolve at a rapid and unparalleled pace. NHTSA has made strides towards understanding the distracted driving problem, but there is more to be done. It is important to continue research using a variety of methodologies, identifying sources of distraction, and evaluating the effectiveness of behavioral and technological countermeasures. In addition, it is important to continue to work to improve data collection to characterize better the consequences of distracted driving.

As we undertake actions to curb distracted driving, NHTSA and our partners continue to remind Americans about the dangers of driving without a seat belt or under the influence. As a consequence, roughly 87 percent of Americans now click their seat belts whenever they ride in cars—up from 60 percent only 15 years ago. The alcohol-impaired-driving fatality rate has declined by 21 percent in the past 10 years, though impaired drivers still constitute nearly one-third of all roadway fatalities.

Working together, we will save lives and prevent injuries. With continued research and deployment of proven effective strategies, distraction-affected crashes can be prevented. Distracted driving does not just happen; it is a choice.

D!STRACTION.GOV

For more information on the Department of Transportation's work to end distracted driving, visit www.distraction.gov.

References

(Endnotes)

[1] CTIA, The Wireless Association. (2012). *CTIA Semi-Annual Wireless Industry Survey.* Washington, DC: Author. Available at www.ctia.org/advocacy/research/index.cfm/AID/10316

[2] CTIA, The Wireless Association. (2012, June). *Wireless Quick Facts—Mid Year Figures.* Washington, DC: Author. Available at www.ctia.org/advocacy/research/index.cfm/AID/10323

[3] NHTSA. (2014, April). *Distracted Driving 2012.* (Traffic Safety Facts—Research Note, Report No. DOT HS 812 012). Washington, DC: National Highway Traffic Safety Administration.

[4] Pickrell, T. M. (2014, February). *Driver Electronic Use in 2012* (Traffic Safety Facts Research Note. Report No. DOT HS 811 884). Washington, DC: National Highway Traffic Safety Administration. Available at www-nrd.nhtsa.dot.gov/Pubs/811884.pdf

[5] NHTSA. (2010, April). *Overview of the National Highway Traffic Safety Administration's Distracted Driving Program.* (Report No. DOT HS 811 299). Washington, DC: National Highway Traffic Safety Administration. Available at www.nhtsa.gov/staticfiles/nti/distracted_driving/pdf/811299.pdf

[6] Tison, J., Chaudhary, N., & Cosgrove, L. (2011, December). *National phone survey on distracted driving attitudes and behaviors.* (Report No. DOT HS 811 555). Washington, DC: National Highway Traffic Safety Administration. Available at www.nhtsa.gov/staticfiles/nti/pdf/811555.pdf

[7] Governors Highway Safety Association. (2014, October). *Distracted Driving Laws.* Washington, DC: Author. Available at www.ghsa.org/html/stateinfo/laws/cellphone_laws.html

[8] Cosgrove, L. Chaudhary, N., & Reagan, I. (2011, July). *Four High-Visibility Enforcement Demonstration Waves in Connecticut and New York Reduce Hand-Held Phone Use* (Traffic Safety Facts Research Note. Report No. DOT HS 811 845). Washington, DC: National Highway Traffic Safety Administration. Available at www.distraction.gov/download/research-pdf/508-research-note-dot-hs-811-845.pdf

[9] Notice of Federal Guidelines, *Visual-Manual NHTSA Driver Distraction Guidelines for In-Vehicle Electronic Devices,* 78 FR 24818; www.federalregister.gov

[10] Transportation Research Board. (in progress). *Strategic Highway Research Plan (SHRP) 2 Naturalistic Driving Study.* Washington, DC: Author. See www.trb.org/StrategicHighwayResearchProgram2SHRP2/Public/Pages/The_SHRP_2_Naturalistic_Driving%20Study_472.aspx

[11] NHTSA, 2010, above.

[12] Klauer, S. G., Dingus, T. A., Neale, V. L., Sudweeks, J. D., Ramsey, D. J. (2006). *The impact of driver inattention on near-crash/crash risk: An analysis using the 100-car naturalistic driving study data.* (Report No. DOT HS 810 594). Washington, DC: National Highway Traffic Safety Administration. Available at www.nhtsa.gov/DOT/NHTSA/NRD/Multimedia/PDFs/Crash%20Avoidance/Driver%20Distraction/810594.pdf

[13] World Health Organization. (2011). *Mobile phone use: A growing problem of driver distraction.* Geneva, Switzerland: Author. Available at www.who.int/violence_injury_prevention/publications/road_traffic/distracted_driving/en/index.pdf

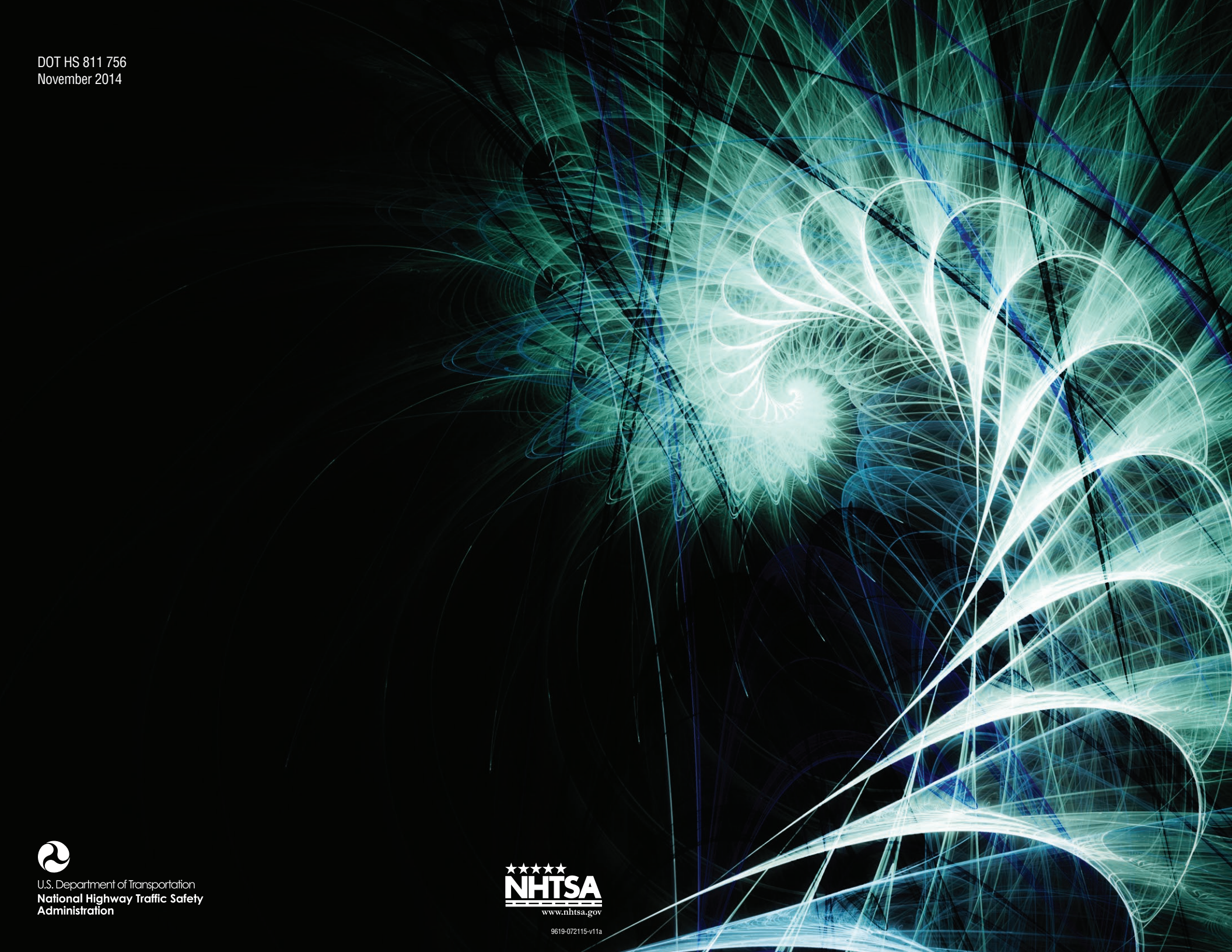
Working together, we will save lives and prevent injuries. With continued research and deployment of proven effective strategies, distraction-affected crashes can be prevented. Distracted driving does not just happen; it is a choice.

DISTRACTION.GOV

Acknowledgement

The National Highway Traffic Safety Administration gratefully acknowledges the contributions made by the National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, notably Dr. Ann Dellinger, to the report.

DOT HS 811 756
November 2014



U.S. Department of Transportation
National Highway Traffic Safety Administration

NHTSA
www.nhtsa.gov

9619-072115-v11a